

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Previously Presented): A reception circuit comprising:

a low noise amplifier having a low noise amplifying circuit with a low gain and a low noise amplifying circuit with a high gain which are capable of selective operation in accordance with control of a bias current; and

a quadrature demodulator connected with a serial capacitance to an output of said low noise amplifying circuit with the high gain of said low noise amplifier and directly connected to an output of said low noise amplifying circuit with the low gain.

Claim 2 (Previously Presented): The reception circuit according to Claim 1, wherein:

during operation of said low noise amplifying circuit with the high gain, a DC bias current thereof is passed independently of a DC bias current of said quadrature demodulator, and

during operation of said low noise amplifying circuit with the low gain, a DC bias current thereof is shared with the DC bias current of said quadrature demodulator.

Claim 3 (Previously Presented): The reception circuit according to Claim 1, wherein:

each of said low noise amplifying circuit with the high gain and said low noise amplifying circuit with the low gain has a pair of differentially connected transistors, and

a first and a second inductive elements are connected in series between emitters of the pair of transistors in said low noise amplifying circuit with the low gain, and both ends thereof are connected to emitters of the pair of transistors in said low noise amplifying circuit with the high gain through a third and a fourth inductive elements, respectively.

Claim 4 (Previously Presented): The reception circuit according to Claim 3, wherein:

said first to fourth inductive elements are formed of a single inductor in which a spiral is smaller helically from a first terminal in an outermost portion and then the spiral is larger through gaps of the helicity, and returns to a second terminal in the outermost portion, and a third and a fourth terminals are drawn from two positions in the middle between an innermost portion of the inductor and said first and second terminals, a fifth terminal is drawn from a position in the innermost portion, said first and second terminals are connected to the emitters of the pair of transistors in said low noise amplifying circuit with the low gain, said third and fourth terminals are connected to the emitters of the pair of transistors in said low noise amplifying circuit with the high gain, and said fifth terminal is grounded through a resistance.

Claim 5 (Currently Amended): The reception circuit according to Claim 3, wherein:

said quadrature demodulator has two Gilbert Cell circuits for an I channel and a Q channel, respectively, and a current source for providing a current bias current for each of the Gilbert Cell circuits,

a first Gilbert Cell circuit has a first differential pair of transistors and a second differential pair of transistors, emitters of the first differential pair of transistors are directly coupled to both said own current source and a collector of one of the low gain pair of transistors in said low noise amplifying circuit ~~and~~ with current selectively flowing ~~connected~~ to said own current source during high gain or to a collector of one of the pair of low gain transistors in said low noise amplifying circuit during low gain, and emitters of the second differential pair of transistors are directly coupled to both said own current source and a collector of the other of the pair of low gain transistors in said low noise amplifying circuit ~~and~~ with current selectively ~~connected~~ flowing to said own current source during high gain or

to a collector of the other of the pair of low gain transistors in said low noise amplifying circuit during low gain, and

a second Gilbert Cell circuit has a third differential pair of transistors and a fourth differential pair of transistors, emitters of the third differential pair of transistors are directly coupled to both said own current source and a collector of one of the pair of low gain transistors in said low noise amplifying circuit ~~and~~ with current selectively ~~connected~~ flowing to said own current source during high gain or to a collector of one of the pair of low gain transistors in said low noise amplifying circuit during low gain, and emitters of the fourth differential pair of transistors are directly coupled to both said own current source and a collector of the other of the pair of low gain transistors in said low noise amplifying circuit ~~and~~ with current selectively ~~connected~~ flowing to said own current source during high gain or to a collector of the other of the pair of low gain transistors in said low noise amplifying circuit during low gain.

Claim 6 (Previously Presented): The reception circuit according to Claim 4, wherein said reception circuit includes an IC chip.

Claim 7 (Previously Presented): A wireless communication terminal apparatus comprising:

a low noise amplifier having a low noise amplifying circuit with a low gain and a low noise amplifying circuit with a high gain which are capable of selective operation in accordance with control of a bias current;

a quadrature demodulator connected with a serial capacitance to an output of said low noise amplifying circuit with the high gain of said low noise amplifier and directly connected to an output of said low noise amplifying circuit with the low gain;

reception level detecting means for detecting a level of a reception signal; and  
control means for performing control of said reception circuit in accordance with an output of said reception level detecting means, characterized in that:

said control means controls said low noise amplifier such that it operates the low noise amplifying circuit with the low gain when said reception signal level is high, and operates the low noise amplifying circuit with the high gain as said low noise amplifier when said reception signal level is low.

Claim 8 (Previously Presented): The wireless communication terminal apparatus according to Claim 7, wherein:

during operation of said low noise amplifying circuit with the high gain, a DC bias current thereof is passed independently of a DC bias current of said quadrature demodulator, and

during operation of said low noise amplifying circuit with the low gain, a DC bias current thereof is shared with the DC bias current of said quadrature demodulator.

Claim 9 (Previously Presented): The wireless communication terminal apparatus according to Claim 7, wherein:

each of said low noise amplifying circuit with the high gain and said low noise amplifying circuit with the low gain has a pair of differentially connected transistors, and

a first and a second inductive elements are connected in series between emitters of the pair of transistors in said low noise amplifying circuit with the low gain, and both ends thereof are connected to emitters of the pair of transistors in said low noise amplifying circuit with the high gain through a third and a fourth inductive elements, respectively.

Claim 10 (Previously Presented): The wireless communication terminal apparatus according to Claim 9, wherein:

said first to fourth inductive elements are formed of a single inductor in which a spiral is smaller helically from a first terminal in an outermost portion and then the spiral is larger through gaps of the helicity, and returns to a second terminal in the outermost portion, and a third and a fourth terminals are drawn from two positions in the middle between an innermost portion of the inductor and said first and second terminals, a fifth terminal is drawn from a position in the innermost portion, said first and second terminals are connected to the emitters of the pair of transistors in said low noise amplifying circuit with the low gain, said third and fourth terminals are connected to the emitters of the pair of transistors in said low noise amplifying circuit with the high gain, and said fifth terminal is grounded through a resistance.

Claim 11 (Currently Amended): The wireless communication terminal according to Claim 9, wherein:

said quadrature demodulator has two Gilbert Cell circuits for an I channel and a Q channel, respectively, and a current source for providing a current bias current for each of the Gilbert Cell circuits,

a first Gilbert Cell circuit has a first differential pair of transistors and a second differential pair of transistors, emitters of the first differential pair of transistors are directly coupled to both said own current source and a collector of one of the pair of low gain transistors in said low noise amplifying circuit ~~and~~ with current selectively flowing ~~connected~~ to said own current source during high gain or to a collector of one of the pair of low gain transistors in said low noise amplifying circuit during low gain, and emitters of the second differential pair of transistors are directly coupled to both said own current source and a collector of the other of the pair of low gain transistors in said low noise amplifying circuit

~~and~~ with current selectively flowing ~~connected~~ to said own current source during high gain or to a collector of the other of the pair of transistors in said low noise amplifying circuit during low gain,

a second Gilbert Cell circuit has a third differential pair of transistors and a fourth differential pair of transistors, emitters of the third differential pair of transistors are directly coupled to both said own current source and a collector of one of the pair of low gain transistors in said low noise amplifying circuit ~~and~~ with current selectively flowing ~~connected~~ to said own current source during high gain or to a collector of one of the pair of transistors in said low noise amplifying circuit during low gain, and emitters of the fourth differential pair of transistors are directly coupled to both said own current source and a collector of the other of the pair of low gain transistors in said low noise amplifying circuit ~~and~~ with current selectively flowing ~~connected~~ to said own current source during high gain or to a collector of the other of the pair of low gain transistors in said low noise amplifying circuit during low gain, and

said control means makes said current source for each of said first and second Gilbert Cell circuit active when said low noise amplifying circuit with the high gain operates and inactive when said low noise amplifying circuit with the low gain operates.

Claim 12 (Previously Presented): The wireless communication terminal apparatus according to Claim 10, wherein said reception circuit includes an IC chip.